IMPACT OF DEBT RELIEF ON INVESTMENT: A CASE FOR HEAVILY INDEBTED POOR COUNTRY INITIATIVES IN SUB-SAHARAN AFRICA

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MASHODO, Frank

THESIS

Submitted to

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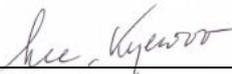
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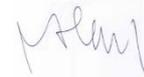
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ABSTRACT

As of September 2014, 35 countries have benefited under the Heavily Indebted Poor Countries (HIPC) Initiative as the program is near completion, of which 29 are in Sub-Saharan Africa (SSA) with a total spending of around US$75 billion. This paper measure the impact of debt relief under the HIPC Initiative on investment (total, private and public) in SSA within the framework of the debt overhang hypothesis and the fiscal space theory. The Difference in Difference model was applied on a panel data of 15 countries, only 8 countries that received debt relief from 2003 to 2005 and 7 non-HIPC covering the period 1996 to 2013 to access the impact of HIPC Initiative in SSA on total, private and public investment.

The results indicated that HIPC Initiative had significant impact on total investment in the region. This increase in total investment in SSA was mainly driven by private investment, which proved to have highly responded positively to debt relief owing to improved macroeconomic stability brought by the implementation of set conditionalities. However, there was little evidence to support the claim the HIPC Initiative has significant impact of public investment. In this regard, the results supported the debt overhang hypothesis in SSA and found little evidence for the fiscal space theory. This paper, therefore, concluded that debt relief affects investment in SSA by; 1) eliminating the debt overhang and encouraging investment and then growth, and 2) improving institutional and governance quality of beneficiary countries that will adopt specific reform programs and in turn encourage private investment.

Key Words: Debt relief, HIPC Initiative, Debt Overhang, Fiscal Space, Investment (Total, private and public)

ACKNOWLEDGEMENTS

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1. INTRODUCTION

The Heavily Indebted Poor Countries (HIPC) Initiative was launched in 1996 and was further enhanced in 1999 by the International Financial Institutions (IFIs) (Gunduz. et. al. 2013, p8), with the objective of creating a harmonized environment for creditors to provide debt relief to poor countries in order to reduce poverty and encourage sustainable growth. Benefiting from debt relief is not automatic. In order to receive debt relief under the HIPC Initiative, indebted countries have to meet a set of specific criteria including implementing poverty reduction policies and demonstrate a good track record of macroeconomic and institutional reforms with the approval of the World Bank and International Monetary Fund (IMF). Figure 1 reviews the HIPC implementation process.

Figure 2: *The HIPC Implementation Process*
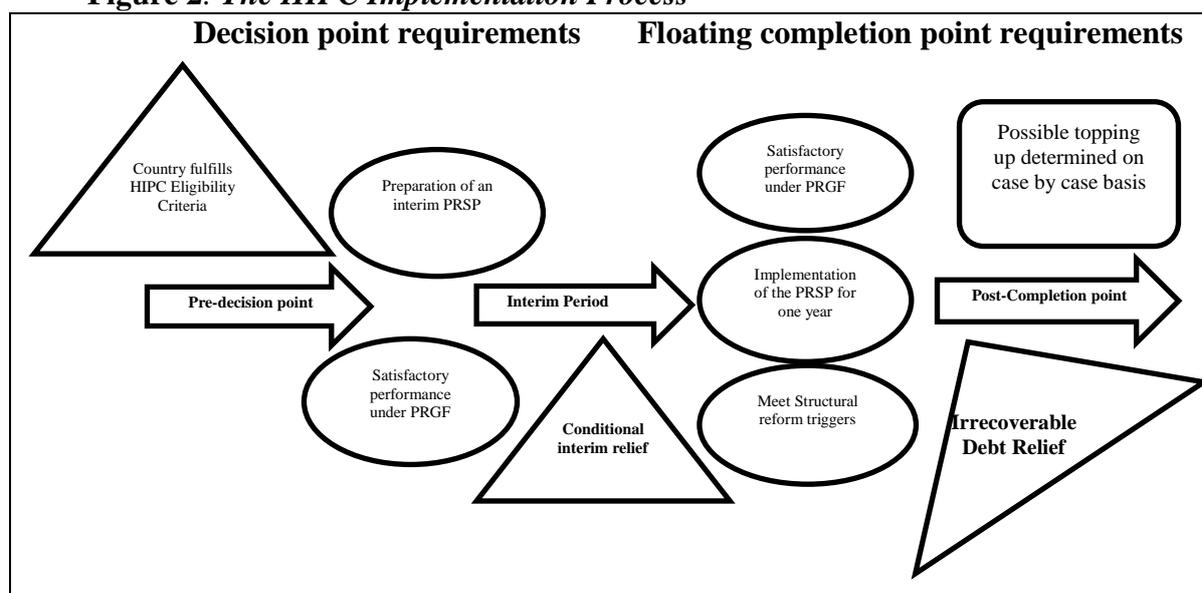
Source: The World Bank, retrieved on 22/09/2015

The successful implementation of the following programs and policies is a critical step toward creating an enabling environment for both private and public investment in poor countries: 1) IMF Staff Monitored Program to fulfill the HIPC eligibility criteria, 2) IMF-financed package under the auspices of the Poverty Reduction and Growth Facility (PRGF), 3) Poverty Reduction Strategy Paper (PRSP) and 4) Structural reforms (including targeting

improving doing business index), which mainly aim at improving policies and governance in recipient countries.

It is worth noting that the above conditionalities imposed by the IFIs under the HIPC initiative were critical towards achieving good governance, macroeconomic stability and debt sustainability, thus sending a signal to the investors that HIPCs in Sub-Saharan Africa (SSA) were committed to sustainable growth. Domeland and Kharas (2009) noted that, "an improved debt sustainability outlook—accompanied by an enhanced security situation, better macroeconomic performance, and high commodity prices - has led to increased interest in Sub-Saharan Africa by foreign investors" p137.

1.1. Statement of the Problem

The International Monetary Fund's 2014 Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) statistical update indicated that, as of September 2014, 35 countries have benefited under the HIPC Initiative as the program is near completion, of which 29 are in SSA. In addition, 4 countries in SSA are at the interim and pre-decision points. This was attained with a total spending of around US$75.0 billion under the HIPC Initiative as at end-2013.

The principal objective of the HIPC Initiative at its launch in 1996 and later enhanced in 1999, was to reduce the debt burden of indebted poor countries to sustainable levels, with harmonized efforts from all creditors including multilateral institutions and individual bilateral creditors (IMF and World Bank, 2001). IMF and World Bank (2001) further defined sustainable debt as, the "levels that allow these countries to service their debt through export earnings, aid, and private capital inflows without compromising long-term, poverty-reducing growth" (IMF website, 2001). The aims indicated here could be achieved since indebted countries are required to implement a range of good policies and reforms including macroeconomic and governance under the surveillance of the multilateral financial

institutions, (the World Bank and IMF), under the auspices of the IMF Staff Monitored Programme and the Poverty Reduction Strategy Paper (PRSP). However, this author is of the view that the lasting solution to sustainable growth and poverty reduction is increased investment.

A recent study by Marceline and Hakobyan (2014) which aimed at investigating whether the HIPC Initiative managed to spur growth concluded that debt relief can stimulate growth but could not establish a clear channel through which such growth is achieved. The study however pointed out the need for further research on the impact of debt relief on investment. Hence, there is need to address this gap by testing whether debt relief under HIPC was able to stimulate investment, with particular attention to SSA. Furthermore, the objective of two investment agencies in an economy are different, that is, the government and private sector. It is also important to distinguish the impact of debt relief on total, private and public investment separately (Ndiaye, 2014) based on the arguments from the Debt Overhang Hypothesis and the Fiscal Space Theory, taking into account the crowding out effect.

1.2. Significance of the Study

The main objective of this paper is to measure the impact of debt relief under the HIPC Initiative in Sub-Saharan Africa (SSA) within the framework of the debt overhang hypothesis and the fiscal space theory. Understanding the causal effects of HIPC which was designed to help poor countries attain the Millennium Development Goals (MDGs) will help develop harmonized donor efforts towards achieving the post-MDGs development programs, as well as designing ideal guidelines for debtors in line with sustainable growth targets in SSA. There is no research which has been done with particular emphasis on SSA in terms of the impact of debt relief on investment. In addition, no studies have yet investigated the difference in the impact of HIPC on public and private investment in Sub-Saharan Africa. Therefore, this study will address this gap.

1.3. Research Questions

The following are research questions that have to be answered at the end of this research:

i. What is the impact of debt relief (HIPC) on total investment in SSA?

ii. What is the impact of debt relief (HIPC) on:

     a. Private investment and

     b. Public investment in SSA?

iii. Is there any difference between the impact of debt relief on private sector investment and the impact on public sector on investment?

The mechanism through which the HIPC Initiative is implemented by the donor community is directly derived from the Debt Overhang Hypothesis [Myers (1977), Cohen and Sachs (1986), Sachs (1989) and Krugman (1988), Koeda (2008), Sichula (2012), Marceline and Hakobyan (2014)]. The theory put forward that indebted countries experience low levels of investment and economic growth since high debt stock is a disincentive to investment and structural adjustment, thus new investments will benefit creditors only. It, therefore, advocates for debt reduction which could help stimulate private investment in SSA since there could be reduced uncertainty, improved structural and macroeconomic policies and reforms.

In addition, the Fiscal Space Theory can also be used to explain how debt relief can stimulate public investment in SSA. Heller (2005) defined fiscal space as the ability of an autonomous nation to fund current and capital expenditures, including debt service without compromising its future programs and priorities. The space can be generated from pursuing rigorous, reliable and well-organized macroeconomic policies, as well as the reduction in unproductive current expenditures. Under the HIPC initiative, fiscal consolidation is critical

to reach the completion point, thus government will have resources to channel towards capital expenditures.

In support of the above theories, Domeland and Kharas (2009) and Addison (2006) summarised channels debt relief under the HIPC Initiative could stimulate growth and encourage investment. This is by: 1) altering the debt dynamics and freeing domestic resources from debt servicing for development expenditures (creating fiscal space), 2) encouraging investment and then growth by removing the debt overhang, 3) clearing way for new financing in both private and public investment, and 4) improving institutional and governance quality of beneficiary countries that will adopt specific reform programs and in turn encourage private investment.

1.4. Hypothesis and Assumptions

The IMF (2014) pointed out that HIPC Initiative has significantly reduced recipient countries' indebtedness, thus the creation of fiscal space, while enabling them to focus on poverty-reducing expenditures. The report showed that HIPCs are spending about five times the amount of debt-service on health and education combined. In addition, the World Economic and Financial Surveys (2014) report pointed out that growth in SSA has improved due to an increase in infrastructure investment, agriculture production, and services, mainly financed by capital from foreign direct investment, a result of lower debt levels in many SSA countries, which could prove the debt overhang hypothesis.

Given the above, it could be reasonable to claim that investment in SSA have improved due to the HIPC Initiative in the countries that received debt relief. Therefore, the following two hypothesis and assumptions will be tested in this paper to answer the research questions.

Hypothesis 1: Debt relief (HIPC) can stimulate investment in SSA, both private and public

Based on the reasons mentioned under the debt overhang hypothesis and the fiscal space theory, this paper seeks to investigate whether the debt relief under HIPC Initiative was enough to stimulate investment. Total investment is the sum of private investment and public investment. Investment is argued to have improved owing to the improved macroeconomic and structural policies that are implemented in consultation with the World Bank and IMF. The key assumption here is that all countries that successfully attain the HIPC completion point would have implemented in full the IMF Staff Monitored Programme and the PRSP, meeting all the set targets and continue to implement such policies for sustained growth.

Hypothesis 2: There is different impact of debt relief (HIPC) on private and public investment.

The separation of private investment and public investment is necessitated by differences in investment behavior of government and the private sector. In SSA, as mentioned by the World Economic and Financial Surveys 2014, FDI drives private investment in SSA. In light of this, it is reasonable to assume that the private investors respond to debt relief within the debt overhang hypothesis argument when making their choices for investment. Sustained macroeconomic and institutional policies coupled with lower debt levels will stimulate confidence in the private investors given anticipated lower future taxes as well as the commitment by the government to continue implementing policies that are business friendly after the completion point.

Public investment is argued to respond differently to private investment under the fiscal space theory. While during the HIPC Initiative implementation phase the government is required to focus on social spending on health and education, fiscal space will be created after the implementation period, where governments have more room to prioritise capital expenditure. In addition, additional fiscal space gives governments room to negotiate much

cheaper new financing for infrastructure projects, which will also help stimulate public investment.

In this regard, I assume that private investment is stimulated in line with the debt overhang hypothesis while public investment is driven by created fiscal space. In addition, because of the differences in these economic two investment agencies (private and public sector), differences in response to debt relief between the two groups of investors is expected, with private investment which is assumed to be more responsive to changes is macroeconomic environment (because of quick decision making process) expected to be more responsive to debt relief than public investment. That is, debt relief is expected to have higher impact on private investment than public investment.

1.5. Organization of the Study

The paper will proceed as follows: Section 2 will provide a review of the theoretical and empirical literature on debt relief, placing a particular emphasis on the debt overhang and the fiscal space theory. Section 3 will look at the model description as well as data used and methodology. Section 4 examines the impact of debt relief on investments, that is estimation and results, including interpretation of the results. The conclusion and recommendations will be in section 5.

2. LITERATURE REVIEW

Given the conditionality under the HIPC Initiative, particularly the implementation of the PRSP, this literature review seeks to broaden and understand the theoretical framework, under which the HIPC Initiative is implemented, identify and critically analyze studies and models used before to evaluate the impact of debt relief in recipient countries with particular reference to investment. The review will first look at the identified two theories that explain how reducing a country's external debt burden can stimulate investment which are; the Debt Overhang Hypothesis (Myers, 1977) and the Fiscal Space Theory (Heller, 2005). Based on the theoretical framework, the review will analyze the mixed empirical evidence on the impact of HIPC Initiative on investment, although many researchers have focused on the impact of debt relief on economic growth, poverty and fiscal variables. This review will put emphasis on the impact of debt relief on investment channels, particularly under the HIPC Initiative.

2.1. Theoretical Review

2.1.1. *The Debt Overhang Hypothesis*

The debt overhang hypothesis was developed by Myers (1977) under the theory of the firm. He stated that, "value of the firm…depends on its future investment strategy", p163. The theory argued that if a firm has huge debt, its new investments' returns are totally used to pay existing debt, which will not improve the firm's assets, leading to fewer prospects for investment and growth. Meyers stated that "if the incremental investment…is debt financed,… increase in the firm's debt ratio erodes the old bondholders' position…[and] the capital gains to stockholders and old bondholders is reduced and possible eliminated", p165. In addition, Krugman (1988), applying the concept at country level, examined the tradeoffs facing creditors between forgiving debts and refinancing for countries in debt overhang. As in

Meyers' theory of the firm, he concluded that a country's new investments will only benefit the new creditors, thus indebted countries are not motivated to new borrowing and investment.

Partial debt relief such as the HIPC Initiative benefits both creditor and debtor countries. Cohen and Sachs (1986) analyzed the growth patterns of countries with external debt overhang in the possibility of debt forgiveness. The authors concluded that debtors will develop a disincentive to adjust their economic progress in anticipation of full debt relief, if debt becomes unsustainable. Sachs (1989) supported the argument by stating that if new financing is given to countries in debt crisis, "compliance of debtor countries with conditionality is rather weak…since a large stock of debt can itself be an important disincentive to good behavior" p257, given the prior point that creditors are expected to benefit from new financing and conditionality. The author concluded that only partial debt relief can motivate debtors to invest and boost growth at the same time guaranteeing creditors of their future loan repayments. This win-win situation is currently applied by The World Bank and IMF in implementing the HIPC Initiative in low income countries.

Koeda (2008) on the debt overhang model indicated that, "one-time stock treatment [debt relief] may help the low income country get out of the poverty trap, provided that the freed-up resources are used effectively," p14. Thus savings from debt relief can only be efficient if used on productive investments, with strict compliance on conditional macroeconomic targets, while at the same time promoting private investment. Based on this view, it is critical that this paper seeks to evaluate whether the HIPC Initiative recipient countries benefited from the elimination of the debt overhang through the effective use of resources generated from debt relief based on the implementation of conditionalities set by the IFIs, and attract new financing, particularly private investment.

The application of the theory mainly to the private investment is based on the following: 1) reduced debt reduced uncertainty to the private investment on the

government's future increase in taxes, 2) the process leading to debt relief helps create conducive environment for investment with good governance, macroeconomic stability and structural reforms which private investors prefer, and 3) improves the countries credit worthiness which enables private investors to have access to the international capital markets.

This argument on the debt overhang hypothesis is inspired by Pattillo et al., (2004) who indicated that, "negative impact of high debt on growth operates both through a strong negative effect on physical capital accumulation and on total factor productivity growth" p4.

2.1.2. *The Fiscal Space Theory*

Fiscal Space can be defined as the ability of a sovereign government to fund both current and capital expenditures, including debt service without compromising its future programs and priorities, as well as its flexibility in adjusting expenditures. According to Heller (2005), fiscal space can be created through the pursuit of sound, consistent and efficient macroeconomic policies, as well as the reduction in unproductive current expenditures.

When creditors provide debt relief under the HIPC Initiative, one of the critical conditions towards achieving the completion point is the implementation of sound macroeconomic policies under the auspices of the IMF-SMP and PRSP, which will place particular emphasis on fiscal consolidation. Heller's view stipulates that, fiscal space can be also produced by policies that increase the potential growth of a country. In this context, all countries in Sub-Saharan Africa (SSA) considered in this paper have successfully completed these two programs, thus it is reasonable to believe that beneficiaries of the HIPC Initiative have managed to strengthen their fiscal position and allocated resources to more productive needs, thus public investment. In addition to the above, on investment, Heller's theory

suggests that, "IMF-supported programs set limits on net domestic borrowing, thus allowing for accommodation of foreign-financed infrastructural investments and social expenditures in priority sectors," p12. Therefore, cooperation with development partners and coordination with the IMF for donor support would help to stimulate investment and generate additional productive capacity for the economy.

This paper used this theory to argue that debt relief will help create fiscal space in the following ways: 1) successful implementation of sound policies under the IFIs conditionality, including recurrent expenditure reduction, 2) reduction in government debt servicing expenditures, 3) ability of a government to attract new financing which depends on the level of debt and in this case it will be low.

2.2. Empirical Review

There is a conflicting view on the impact of debt relief in recipient countries and different studies have been conducted to establish, confirm or refute the above theories. However, most studies could not focus strictly on the impact of HIPC on investment, including separating public investment from private investment. Findings in the literature are ambiguous, with others supporting the debt overhang hypothesis and fiscal space theory, while others opposing the theories. Starting from the most recent literature focusing on economic growth and investment, the empirical evidence on the supporters and opposes of the debt overhang will be discussed first, followed by fiscal space theory. An overview on the implications of this review on this paper will conclude this section.

2.2.1. *The Debt Overhang Hypothesis*

Marcelino and Hakobyan (2014) investigated whether HIPC Initiative stimulates growth, directly or indirectly through investment using the growth and investment models. Their results indicated that HIPC countries achieved higher growth, but could not establish whether this was through higher investment or another channel. They applied the System-

Generalized Method of Moments (GMM) on a sample of 72 countries for the period 1996 to 2011 to addresses potential endogeneity and country fixed effects. They used HIPC dummy to differentiate countries that received debt relief and others. Although HIPC was insignificant on investment, the authors concluded that, "the significant and positive effect on growth from the higher investment can be associated with debt relief," p18. In conclusion, they recommended further research on the impact of debt relief on investment, of which this paper aims to fill the gap.

The single most comprehensive empirical work that directly looked into the impact of debt relief on investment was by Knoll (2013). The study tested the validity of the debt overhang hypothesis from a sample of 82 developing countries which were eligible to borrow from World Bank's IDA window for the period 1991 to 2011. The author used the average treatment effect on the treated (ATET) on repeated cross sections. Results from the study show significant impact of HIPC Initiative on total investment mainly driven by private investment. In this regard, based on this research, debt relief resulted in higher private investment in beneficiary countries and could not stimulate public investment.

The debt overhang hypothesis has been empirically tested in Southern African Development Community (SADC), part of SSA by Sichula (2012) in which 5 countries have received debt relief under the HIPC Initiative between 2001 to 2006, using data from 1970 to 2011. The results suggest that external debt growth negatively affecting growth before HIPC completion and the reduction in external debt improved growth. However, the researcher was not conclusive on the debt overhang effects on investment but suggested that debt service has no effects on investment.

Raddatz (2009) targeted the impact of debt relief under the multilateral debt relief initiative (complementing HIPC) on private investment through the stock market, based on the critical assumption of efficient markets that stock prices reflect the impact of debt relief

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(at all HIPC process critical stages) by increasing firm's value owing to country's improvements prospects and reduction in future taxes. The research used data from 35 South African companies with 187 subsidiaries in HIPCs countries in Africa over a period from 1995 to 2006. Results from this study show abnormal returns on these companies as stock prices of these companies increased significantly than other firms in South Africa after announcement of HIPC processes. In summary, this paper found a positive impact of debt relief on private investment.

On the other hand, Chauvin and Kraay (2005) assessed whether $100 billion aid delivered in form of debt relief to low income countries by 2003 has successfully reduced the debt overhang and free up debt service resources to development spending. Chauvin and Kraay's study found that debt relief affected the level and composition of public spending (fiscal adjustment) although it could not stimulate growth, investment and quality of policies and institutions. They indicated that debt relief was used to reduce taxes by government and only managed to increase the share of health and education as a share of total spending. In addition, Bert and Helmut (1990) after testing the impact of debt relief on investment found that there is no negative correlation between debt and investment, and concluded against the debt overhang hypotheses. They concluded that additional financing for investment is a solution for a debt burdened country than debt relief. It could be important to note that the findings of these papers could not reflect the current benefits of Sub Saharan Africa given that only few countries had achieved the HIPC completion by 2005.

Other studies in support of the debt overhang theory include Bhattacharya and Clements (2004). Their results suggested that high debt levels above 50% of debt threshold negatively affect economic growth in low-income countries, thus debt relief can reverse the effects. They, however, found that debt does not discourage private investment but affect growth through its effect on resources use efficiency.

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2.2.2. *The Fiscal Space Theory*

Empirical study on the impact of debt relief through fiscal space theory on a sample of 24 SSA countries for the period 1996 to 2011 by Cassimon at el (2013) pointed out that HIPC was significant to low income countries. They found positive debt relief impact on public investment. In addition, a study by Cassimon and Campenhout (2007) indicated that fiscal impact of debt relief follow complex dynamics, where it initially reduces public investment in the short run, with medium term positive effects. This implies that debt relief encourages public investment spending in the economy, in support of the fiscal space theory.

Quattri and Fosu (2012), investigated the impact of the external debt-servicing and external aid, on government expenditure allocation (fiscal space) in sub-Saharan Africa countries after the launch of HIPC using a panel data of 40 SSA countries (29 HIPCs), for the period 1995-2009. Their results suggested that external debt payments negatively affect government expenditure. However, regarding the HIPC effect, the negative effect is smaller after the launch of HIPC than the pre-HIPC period. They concluded that HIPC have achieved its targets, including effective public expenditure allocation. Although not clearly conclusive, the paper suggests that HIPC has no impact on public investment, but on social expenditures.

Clements, Bhattacharya and Nguyen (2003) examine the channels through which external debt affects growth using the fixed effects and system General Method of Moments (GMM) estimation for 55 low-income countries from 1970 to 1999. Their argument was based on Koeda (2006)'s view that the impact of debt in emerging markets is different from low income countries. Their results suggested that, "reductions in external debt service could also provide an indirect boost to growth through their effects on public investment", p1.

2.3.   Implications of the review

Attaining HIPC completion point in this paper is assumed to be evidence for commitment to continue implementing sound macroeconomic policies thus encouraging

investment and new financing. Birdsall, Claessens and Diwan (2002) investigated if HIPC debt could revitalize official flows to Africa with special emphasis on the donor community. They argued that HIPC influence the behavior of donor's in terms of; 1) additionality (where debt relief will be followed by additional resources flow), 2) efficiency and ownership (successful implementation PRSP through efficient use resources saved from debt relief, with proper institutions and governance), and 3) selectivity (donors prefer channeling resources to countries with sustained good governance and institutions).

Table 9: *Summary of Studies: Impact of debt relief on Investment*

Author	Sample	Investment		
		Total	**Private**	**Public**
Marcelino and Hakobyan (2014)	72 countries (1996 – 2011)	No impact		
Knoll (2013)	82 countries (1991 –2011)	Positive impact	Positive impact	No impact
Cassimon at el (2013)	24 SSA countries (1996 – 2011)			Positive impact
Cassimon and Campenhout (2007)	28 HIPC countries (1991 – 2004)			Negative impact (short run) Positive impact (Medium term)
Chauvin and Kraay (2005)	(1989 – 2003)	No impact		
Sichula (2012)	5 HIPCs in SADC (1970- 2011)	No impact	No impact	No impact
Raddatz (2009).	35 South African companies with 187 subsidiaries in HIPCs countries in Africa (1995 to 2006)		Positive impact	
Quattri and Fosu (2012)	40 SSA countries -29 HIPCs (1995-2009)			No impact

The above review clearly shows that the impact of debt relief on investment is ambiguous, (see Table 1). These differences may be due to differences in econometric methodologies, time (most of them were done before most countries have received relief or have adjusted after the HIPC) as well as sample coverage. In addition, most papers have been including investment and other independent variables, thus no special attention was given to the direct impact of HIPC on investment.

Pursuant to the gap indicated above, this paper will focus on strictly investment, separating public investment and private investment in SSA. The argument for investment is

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as summarized by Domeland and Kharas (2009) and Addison (2006). They indicated that debt relief could stimulate investment by 1) altering the debt dynamics and freeing domestic resources from debt servicing for development expenditures (creating fiscal space), 2) eliminating the debt overhang and encouraging investment and then growth, 3) paving way for additional borrowing (financing) for investment, and 4) improving institutional and governance quality of beneficiary countries that will adopt specific reform programs and in turn encourage private investment.

The ambiguity from these studies emanate from the sample sizes and methodologies applied. All countries which qualify for the HIPC Initiative were classified in 1996 at its launch, forming the treatment group. Its impact in each country will be realized at and after the completion point, which is based on the country specific progress in implementing the set conditionalities. Therefore, an assessment of the impact of the period from 1996 [Marcelino and Hakobyan (2014), Cassimon at el. (2013)] is more plausible to identify the pre-treatment effect. The difference in completion point will mean extending the period to cover more countries is ideal. Therefore, this paper covers period 1996 to 2013. It is also important to compare the trend in investment with other countries in the same region (Sub-Saharan Africa), for which investment is assumed to have been different due to high external debt.

Regarding the methodologies used in most of these papers, it is important to review the nature and characteristics of the HIPC Initiative. Countries that benefited from the HIPC Initiative were not chosen because of the unsustainable level of external debt and level of income, which is non-random. In addition, there exist a group of low income countries in the same region under investigation in this paper (control group) and therefore a natural experiment to compare the impact of the policy that affect debt relief beneficiaries only. In this case, the difference in difference become an optimal methodology, for which only Knoll (2013) and Chauvin and Kraay (2005) have partially used. Thus conflicting results on the

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impact of debt relief on investment among researchers need to be clarified using the difference in difference which control for fixed effects, is suitable for non-random experiments, control for pre-treatment and post-treatment effects.

3. METHODOLOGY AND DATA

3.1.   Methodology

Given the nature and characteristic of the problem under investigation in this research, where countries are not randomly selected, and that the HIPC Initiative is specific policy intervention whose impact is being investigated, it is prudent to empirically test the hypothesis stated in chapter 1 using the widely used impact evaluation methodology, the Difference-in-Differences (D-i-D). The D-i-D is applicable on non-random samples and also takes into account the pre-existing differences between treatment and control groups. As stated by Lechner (2011), the D-i-D estimator can be used to estimate the effects of policy interventions that do not affect all the treatment and control units within a sample. This is the case with the HIPC Initiative, which only targeted indebted countries within the group of low income countries, owing to high and unsustainable debt. Therefore, in order to assess the impact of debt relief under the HIPC Initiative on investment in Sub-Saharan Africa (SSA), the D-i-D method is appropriate.

This methodology have also been used by Knoll (2013) and Chauvin and Kraay (2005), in assessing the impact of debt relief. However, Knoll (2013) applied the D-i-D on repeated cross-sections, which could not capture the time effects as well as assessing whether control and treatment groups trend together. Lechner (2011), pointed panel data is superior to repeated cross section since it allows the inclusion of additional control variables that jointly affect outcomes with the policy intervention, in addition to the ability to follow outcome dynamics overtime. In this regard, this paper will apply the D-i-D on panel data, to capture the pre-existing difference between the control and treatment groups, and will include additional control variables to capture the effects of other factors on investment, which may or may not have improved due to debt relief.

The baseline specification of a difference-in-differences estimator that is derived from the equation for panel data is specified in equation (1) below.

$$Investment = \beta_0 + \beta_1 HIPC + \beta_2 AFTER + \beta_3 HIPCAFTER_i + \varepsilon \dots\dots\dots\dots\dots\dots(1)$$

where **_Investment_** will represent vector of selected investment variables which will be gross fixed formation to GDP (total, public and private), **_HIPC_** is a treatment dummy taking 1 for countries which achieved the HIPC debt relief completion point and 0 for countries that did not get debt relief in SSA, **_AFTER_** is a time dummy taking 1 for years after 2004 for non-HIPCs & year of completion (2003, 2004 or 2005) for HIPCs and 0 otherwise. The **_HIPCAFTER_** is the interaction dummy of the two dummies (HIPC and AFTER).

In order to account for other factors that affect investment in SSA other than debt relief and also to reduce the bias from potential differences in time trend, additional set of variables will be included in the model, denoted by X as shown on the model in equation (2) below.

$$Investment = \beta_0 + \beta_1 HIPC + \beta_2 AFTER + \beta_3 HIPCAFTER + \beta_4 X + \varepsilon \dots\dots\dots\dots\dots.(2)$$

The list of macroeconomic control determinants of investment in SSA is summarized as follows:

Table 10: _Determinants of Investment in SSA, other empirical researches_

Variable	References
Current account deficit	Clements at. el, (2003); Shawa at. el, (2012); Agidew, (2014).
GDP	Clements at. el, (2003), Shawa at. el, (2012); Agidew, (2014).
Natural resources	Mhlanga, (2010).
Private/Public Investment*	Agidew, (2014), Babajide, (2011); Ndikumana (2000)

public investment and private investment relationship (Crowding out or Complementary)

As indicated on this model, HIPC dummy is time invariant variable and must be included in the model to capture the preexisting differences between the HIPCs and non-HIPC in 1996. In this sense, the D-i-D will be done on the OLS model which allows the time invariant factors. Given that this OLS model follows the random effects model, it is chosen

and will be subjected to diagnostic test for the random effects appropriateness. These include the Breusch-Pagan Lagrange Multiplier for testing the variances across entities, which is there is no difference in variances of the error term across the countries included in the sample and the OLS model is appropriate. To take care of possible heteroskedasticity and raise the confidence level on the results, robust standard errors will be used.

3.2. Data

Out of the 49 countries in SSA, 29 countries (See Annex1) have received debt relief under the HIPC Initiative between 2000 and 2012. However, due to the differences in the year of completion and data problems, only 8 countries that received debt relief from 2003 to 2005 will be included. A panel data will be used covering the period 1996 to 2013. The source of data is World Development Indicators (August 2015). It is considerable to note that HIPC completion point was attained in different years. In order to effectively evaluate the outcome of debt relief under the D-i-D method, it is substantial to use a single year of completion to effectively evaluate the impact of debt relief through time changes, therefore the sample selection section explains how the sample have been developed.

3.2.1. *Sample Selection*

The sample selected has 15 countries, for which 8 will be HIPC which attained the completion point in 2003 to 2005 and 7 non-HIPCs (the total number of countries which did not receive debt relief in SSA and data is available). The motivation for the choice of this period is: 1) the highest number of countries that received debt relief under HIPC Initiative in SSA was in 2004 (5 countries); 2) to increase sample size and reduce potential estimation errors, three (3) additional countries added received debt relief in 2003 & 2005 for which debt relief effects on investment might not be different from 2004 HIPCs; and this period (2003 to 2005) provides for enough pre and post treatment effects since its almost at the middle of the sample covered in this paper; 1996 to 2013. *HIPC* dummy will take 1 for

countries that attained HIPC completion status in 2003, 2004 and 2005. and 0 for countries that did not get debt relief. *AFTER* dummy will be a time variable which takes 1 for the period 2004 to 2013, while 0 for the period 1996 to 2003 (year of completion for HIPCs, which is 2003, 2004 or 2005). *HIPCAFTER* dummy will be the interaction between the two dummies, *HIPC* and *AFTER* dummies. For details of countries included, see Annex 1.

Table 11: *Data Description and Sources*

Label	Description	Source
Total Investment	Gross fixed capital formation (%f GDP)	World
Private Investment	Gross fixed capital formation, private sector (% of GDP)	Development Indicators
Public Investment	Gross fixed capital formation, Public sector (% of GDP)	Author calculations
HIPC Dummy	Take 1 for no HIPC and 0 non-HIPCs	Author classification
AFTER Dummy	Take 1 from 2004/2005 to 2013 and 0 from 1996 to 2003/2004 or year of completion.	Author classification
HIPCAFTER	Interaction between the HIPC and AFTER dummies	Author classification
Current Account	Measured by difference between the exports and imports of goods and services (% of GDP).	World Development Indicators
GDP	GDP per capita annual growth (%)	
External Debt	External debt stocks (% of GNI)	
Natural Resources	Total natural resources rents (% of GDP)	

Table 12: *Summary Statistics*

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Total Investment (% of GDP)	269	22.73	8.188	8.615	74.82
Private Investment (% of GDP)	264	14.19	7.051	2.047	52.17
Public Investment (% of GDP)	264	8.458	3.716	2.363	24.38
Current Account (% of GDP)	270	-10.34	23.38	-118.3	40.87
GDP (per capita annual growth %)	270	2.340	3.774	-15.28	18.51
External Debt (% of GNI)	270	48.86	38.01	4.117	226.3
Natural Resources (% of GDP)	270	12.76	15.57	0.00338	71.48
HIPC	270	0.533	0.500	0	1
AFTER	270	0.559	0.497	0	1
HIPCAFTER	270	0.300	0.459	0	1

Table 13: *Correlation Matrix*

	Total Investment	Private Investment	Public Investment	Current Account	GDP	External Debt
Total Investment	1.0000					
Private Investment	0.8923	1.0000				
Public Investment	0.5162	0.7040	1.0000			
Current Account	-0.4818	-0.4600	-0.2022	1.0000		
GDP	0.1146	-0.0390	0.3411	-0.0001	1.0000	
External Debt	-0.0454	-0.0050	-0.0820	-0.0278	-0.1298	1.0000
Natural Resources	-0.0426	-0.1255	0.1330	0.4775	0.1194	0.2638
HIPC	-0.0924	-0.1332	0.0685	-0.1374	-0.0417	0.2531
AFTER	0.0779	0.0230	0.1161	-0.0009	0.1633	-0.5662
HIPCAFTER	0.1610	0.0974	0.1902	-0.1400	0.0632	-0.2846
	Natural Resources	HIPC	AFTER	HIPCAFTER		
Natural Resources	1.0000					
HIPC	-0.1964	1.0000				
AFTER	0.0475	0.0070	1.0000			
HIPCAFTER	-0.1092	0.6124	0.5812	1.0000		

3.2.2. *Definition of Variables*

As mentioned earlier, the dependent variable will be investment, which will be separated into three equations for total, private and public investment. The independent variable will be, *HIPC* dummy, *AFTER* dummy, *HIPCAFTER* dummy and other control variables which are GDP per capita growth, natural resources rent, external debt, current account deficit, and ODA.

Investment is measured by the Gross Fixed Capital Formation as a share of GDP, which is the volume of both domestic and foreign fixed assets investment as a share of GDP. This will be divided into 3 where total investment will be the GFCF, private investment will be Gross Fixed Capital Formation Private sector as a share of GDP and public investment is the residual[1]. Considering the sample of 15 countries selected, in 1996, HIPC countries total investment in SSA averaged 17% of GDP and grew to around 27% of GDP in 2013 (See chart 2). On the other hand, non-HIPCs averaged 30% of GDP total investment in 1996 which relatively slowed to 24% of GDP in 2013.

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[1] The residual (public investment) calculated by the difference between total investment and private investment, be based on the assumption that there are only two investment agencies: the private sector and public sector

Private investment grew from 10% in 1996 to 16% in 2013 and public investment grew from 8% to 10% during the same period for HIPCs. On the other side, non-HIPCs private investment fell from 20% to 14%, while public investment was 10% of GDP in 1996 and in 2013 averaged 8% of GDP. Due to data limitations on public investment, the difference between total and private investment from the World Bank Indicators was used as a proxy to estimate public investment.

On average, the table below shows the total, private and public investment levels before and after the HIPC completion point (2004).

Table 14: *Investment in SSA (% of GDP), Before and After HIPC*

	Total Investment		Private Investment		Public Investment	
	Before	After	Before	After	Before	After
HIPC	18.6	24.8	10.9	15.2	7.6	9.5
Non-HIPC	25.9	21.3	17.6	13.3	8.3	8.0

Source: Author

The **current account deficit** measured by the difference between exports and imports as a share of GDP averaged 13% in 1996 for non-HIPC and 8% for HIPCs. After debt relief, HIPCs on average had a higher current account deficit which stood at 12% in 2013, while non-HIPCs current account deficit reduced to as low as 1% in 2013.

Real GDP per capita measured at 2005 prices show significant increase in non-HIPCs, averaging US$3,387 in 1996 and moved to US$5,356 in 2013. This was far from the HIPC level in both years. In 1996, HIPCs GDP per capita averaged $403, which is around the IDA qualification cut off.

Natural resource rent as a share of GDP which measures the countries level of proven natural resources has been constant overtime, indicating that there has not been much natural resource discoveries. However, comparing the two categories, HIPC countries were endowed with more natural resources than non-HIPC, with HIPCs having natural resource rent to GDP averaging 15% in 1996 and 18% in 2013. Non-HIPC averaged 12% of GDP both

in 1996 and 2013. In this regard, is critical to control for natural resource rent, since the improved investment in HIPCs could have been stimulated by the availability of natural resources. On the other hand, there was improved governance which may have motivated investors to carry out natural resources exploration activities in HIPCs.

External Debt as a percentage of GNI has been relatively constant standing at 55% of GNI in 2013, in non-HIPC countries, although it reduced from the 1996 average of 56% of GNI to 33% of GNI in 2004. Compared to non-HIPCs, countries that attained HIPC completion witnessed significant improvements in their debt levels, which moved from an average of 123% of GNI in 1996 to 32% of GNI in 2013. This was however, made possible by debt relief in the form of HIPC. In addition, debt service in HIPC countries reduced from 5% of GNI in 1999 to 1.2% of GNI in 2013, while non-HIPC debt service ratio to GNI remained relatively constant at 6% of GNI.

3.3. Expected Results

Given the model specified above, and the vector of X control variables listed, the coefficient of HIPCAFTER dummy, ***β₃ is expected to be positive.*** This measures the difference in investment levels between HIPCs and non-HIPCs after the HIPC completion point, taking into account their pre-treatment levels. In other words, if debt relief had impact in SSA, a positive and significant β_3 is expected for total, private and public investment.

Thus HIPC are expected to have improved both private and public investment, owing to lower debt levels and conducive environment for investment created during the implementation of conditionalities set under the HIPC Initiative.

4. RESULTS AND DISCUSSION

This section will provide a detailed account of the results generated from the quantitative data analysis using panel data for the period 1996 to 2013 applied on the OLS Difference-in-Difference (D-i-D) estimation method. In addition, the critical analysis of the results will be done in the discussion section.

4.1. Results and interpretation

The simple (baseline) D-i-D regression (Table 7) results, which include only 3 dummy variables, suggest that HIPC was able to stimulate investment in Sub-Saharan Africa. The HIPCAFTER which measures the level of investment in HIPC countries after the attainment of HIPC completion point, show that investment was able to improve after the debt relief in HIPCs since the coefficient is positive and is significant at 1% for total investment. The results further suggest that this increase in total investment in SSA was driven by private investment, which has a positive and significant coefficient at 5%. (See column 2, table 7). In addition, public investment also improves in HIPC countries, with the coefficient significant at 10%.

Table 15: *Baseline Difference-in-Difference regression: OLS*
Dependent Variable: INVESTMENT

VARIABLES	(1) Total	(2) Private	(3) Public
HIPC	-7.348*	-6.640**	-0.762
	(4.119)	(3.205)	(1.433)
AFTER	-4.279	-4.128	-0.313
	(3.258)	(3.143)	(0.993)
HIPCAFTER	10.45***	8.316**	2.285*
	(3.882)	(3.915)	(1.264)
Constant	25.91***	17.61***	8.358***
	(3.781)	(2.877)	(1.257)
Observations	269	264	264
No of Countries	15	15	15
Wals Chi2(3)	10.29	5.87	8.72
	(0.0163)	0.1179	(0.0333)
R-Squared	0.1807	0.1379	0.0717
Breusch Pagan LM	411.05	287.17	464.56
	(0.0000)	(0.0000)	(0.0000)

*Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

The validity of D-i-D methodology used is based on the critical assumption that differences between the two groups remain constant in the absence of policy intervention. However, this may be difficult to satisfy, given that countries have totally different investment policies and operating environment, as evidenced by the HIPC countries' failure to attain the HIPC completion point in the same year. Although the D-i-D methodology takes into account the pre-existing differences between the two groups (HIPC dummy) using panel data, it allows for the inclusion of other variables (vector of X) to control for differences in trends which are unrelated to the debt relief intervention. In addition, the Wals Chi2(3) which test the overall significance of the model in OLS estimation must have a p-value less that 5%, (for 5% significance level used by this author). However, from the baseline model above, the results suggest that private investment equation is not significantly different from zero.

Given the above background, I added a vector of macroeconomic variables that may affect investment to reduce the bias from the potential differences in time trend as well as to improve the significance of the private investment equation. The private and public equations have an additional variable for the other type of investment to test the effects of crowding out effect. It is also critical to control for the effects of external debt in the equation, since the policy was done to reduce the level of debt which affects investment. However, there is possible multiple-causality since the HIPC and HIPCAFTER dummies in the model follow closely the level of external debt in HIPC countries.

The macroeconomic control variables have been used in levels (column 1 and 2) as well as demeaned values (column 3 and 4) in Tables 8, 9 and 10. Given that the D-i-D estimation is a set of fixed effects model, the use demeaned variables is to remove the country specific issues by taking the observed deviations from the mean at country level that is removing country fixed effects variables.

Table 8: *Controlled Difference-in-Difference regression: OLS Model*
Dependent Variable: TOTAL INVESTMENT

VARIABLES	(1)	(2)	(3)	(4)
HIPC	-6.744*	-7.007**	-4.110	-4.142
	(3.550)	(3.486)	(3.550)	(3.338)
AFTER	-2.967**	-2.800*	-2.656**	-2.629*
	(1.417)	(1.599)	(1.217)	(1.382)
HIPCAFTER	6.558***	6.773***	5.877***	5.927***
	(2.205)	(2.113)	(2.083)	(2.109)
Current Account	-0.416***	-0.414***		
	(0.0480)	(0.0572)		
GDP	0.307***	0.313***		
	(0.0612)	(0.0651)		
Resources	0.169	0.165		
	(0.108)	(0.119)		
External Debt		0.00650		
		(0.0189)		
Demeaned Current Account			-0.479***	-0.478***
			(0.0737)	(0.0848)
Demeaned GDP			0.347***	0.348***
			(0.0677)	(0.0705)
Demeaned Resources			0.157	0.156
			(0.106)	(0.111)
Demeaned External Debt				0.00123
				(0.0199)
Constant	18.83***	18.55***	24.29***	24.28***
	(3.739)	(3.781)	(3.266)	(3.375)
Observations	269	269	269	269
No of Countries	15	15	15	15
Wals Chi2(3)	186.94	223.62	121.84	122.90
	(0.000)	(0.000)	(0.000)	(0.000)
R-Squared	0.5198	0.5198	0.5238	0.5235
Breusch Pagan LM	377.39	383.44	796.41	769.01
	(0.000)	(0.000)	(0.000)	(0.000)

*Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$*

The total investment results from the controlled equations (Table 8) for which the overall models are significant at 1%, and the Breusch Pagan Lagrange Multiplier also justifying the use of the OLS model, suggest that HIPC Initiative has significant impact on total in SSA. Whether external debt have been controlled for as in columns (2) and (4) or not controlled (columns 1 and 3) the HIPC Initiative was able to stimulate investment in SSA by more than 5% of GDP at 1% level of significance. These results are also similar both equations taking into account levels or demeaned control variables.

Tables 9, with results from the private investment equation clearly show the importance of control variables, particularly demeaned values in the model. The overall model for private investment is now significant at 1% and the natural resources in columns 2 and 3 (which are demeaned) are significant compared to baseline result in Table 7. Therefore, at 5% level of significance, the HIPC Initiative had significant impact of private investment in SSA.

Table 16: *Controlled Difference-in-Difference regression:OLS Model*

Dependent Variable: PRIVATE INVESTMENT

VARIABLES	(1)	(2)	(3)	(4)
HIPC	-6.219**	-7.070**	-3.840	-4.219*
	(3.077)	(2.991)	(2.658)	(2.500)
AFTER	-3.036**	-2.493*	-2.700***	-2.371**
	(1.306)	(1.333)	(0.852)	(0.983)
HIPCAFTER	5.501***	6.192***	4.514**	5.115***
	(2.082)	(1.958)	(1.896)	(1.911)
Current Account	-0.353***	-0.347***		
	(0.0518)	(0.0607)		
GDP	0.168*	0.185*		
	(0.0983)	(0.0979)		
Resources	0.159	0.146		
	(0.100)	(0.117)		
Public Investment	-0.198	-0.175		
	(0.254)	(0.262)		
External Debt		0.0216		
		(0.0215)		
Demeaned Current Account			-0.458***	-0.443***
			(0.0664)	(0.0811)
Demeaned GDP			0.236***	0.241***
			(0.0846)	(0.0859)
Demeaned Resources			0.187**	0.183*
			(0.0925)	(0.101)
Demeaned Public Investment			-0.194	-0.177
			(0.258)	(0.264)
Demeaned External Debt				0.0152
				(0.0215)
Constant	13.17***	12.06***	16.09***	15.94***
	(4.280)	(4.574)	(2.369)	(2.467)
Observations	264	264	264	264
No of Countries	15	15	15	15
Wals Chi2(3)	381.03	384.72	135.79	165.80
	(0.000)	(0.000)	(0.000)	(0.000)
R-Squared	0.5208	0.5244	0.5309	0.5334
Breusch Pagan LM	284.72	296.53	670.59	640.82
	(0.000)	(0.000)	(0.000)	(0.000)

*Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$*

In addition, Table 10 provide for results from the public investment equation, for which the Breusch Pagan LM and Wals Chi2(3) suggest the random effects model is appropriate and the overall model is significant. Focus in the HIPCAFTER dummy, column 1 with control variables in levels show that HIPC had significant impact on investment at 5%. However, if controlled for external debt, the impact becomes significant only at 10%. This researcher is more satisfied with demeaned control variables which may have reduced time invariant unobservable and country specific effects. In this regard, columns 3 and 4 will help conclude that at 10% level of significance, debt relief had some impact on public investment in SSA.

Table 17: *Controlled Difference-in-Difference regression: OLS Model*
Dependent Variable: PUBLIC INVESTMENT

VARIABLES	(1)	(2)	(3)	(4)
HIPC	-1.068	-0.508	-0.580	-0.197
	(1.468)	(1.512)	(1.424)	(1.418)
AFTER	-0.636	-0.903	-0.501	-0.787
	(0.891)	(0.884)	(0.929)	(0.901)
HIPCAFTER	2.345**	1.827*	2.254*	1.626
	(1.157)	(1.018)	(1.178)	(1.099)
Current Account	-0.0634***	-0.0695***		
	(0.0244)	(0.0261)		
GDP	0.175**	0.164**		
	(0.0701)	(0.0723)		
Resources	0.0347	0.0434		
	(0.0332)	(0.0335)		
Private Investment	-0.0735	-0.0652		
	(0.0928)	(0.0959)		
External Debt		-0.0125		
		(0.00941)		
Demeaned Current Account			-0.0711	-0.0818
			(0.0520)	(0.0532)
Demeaned GDP			0.165**	0.157**
			(0.0731)	(0.0731)
Demeaned Resources			-0.0147	-0.0119
			(0.0548)	(0.0557)
Demeaned Private Investment			-0.0827	-0.0753
			(0.110)	(0.111)
Demeaned External Debt				-0.0143
				(0.0102)
Constant	8.208***	8.557***	8.289***	8.421***
	(2.107)	(2.108)	(1.249)	(1.314)
Observations	264	264	264	264
No of Countries	15	15	15	15
Wals Chi2(3)	24.65	25.48	27.64	27.51
	(0.0009)	(0.0013)	(0.0003)	(0.0006)
R-Squared	0.1174	0.1279	0.1247	0.1378
Breusch Pagan LM	227.67	211.49	484.04	492.52
	(0.000)	(0.000)	(0.000)	(0.000)

*Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

As indicated in chapter 1, there are two claims which would help to answer the research questions on the impact of debt relief on total, private and public investment have been tested in this section. Regarding hypothesis 1 which state that debt relief under the HIPC Initiative has impact on investment, both private and public, the above analysis proved that there is clear evidence that the HIPC Initiative was able to stimulate total and private investment at 5% level of significance. However, the programme had smaller impact on public investment than private investment.

Hypothesis 2, which motivated the separation of public investment from private investment claim that there is differences in impact of debt relief on private and public investment. In order to test this hypothesis, I compare the two results for the HIPCAFTER dummy from the private and public investment questions (Tables 9 & 10). Given the conclusion that debt relief had smaller impact on public investment in SSA than private, the conclusion that can be drawn is to accept the null hypothesis that there is difference in the impact of debt relief on private investment and public investment.

Regarding a vector of control variables, this research also provided no evidence of crowding effect in SSA, since the public investment on private investment was not significant and also vice versa. The current account deficit is suggested to be negatively related to investment; total and private. Natural resources are also suggested to important factor that stimulates private investment in SSA, while real GPD per capita growth is significant for public, private and total investment.

4.2.   Discussion

The existing body of literature though has not been directly focusing on investment specifically and those who looked at investment used different methodologies and samples coverage; some of their results have been suggestive of the fact that HIPC Initiative has impact on investment, through private investment and little via public investment (See Table

1). The conclusion from this paper is relatively similar to Knoll (2013), who also found that HIPC was able to stimulate total investment, driven by private investment with no impact on public investment and Raddatz (2009) who found HIPC significant for private investment. This is 2014different from the results found by Cassimon at el (2013), Sichula (2012), Quattri and Fosu (2012), Cassimon and Campenhout (2007) and Chauvin and Kraay (2005).

The results indicated about cast some doubts on the summary by Domeland and Kharas (2009) and Addison (2006) on the channels through which debt relief affects investment in SSA. The debt overhang hypothesis can be supported by debt relief impact on private investment but there is little evidence to support the fiscal space theory. In conclusion, debt relief therefore affects investment in SSA by; 1) eliminating the debt overhang and encouraging investment and then growth, and 2) improving institutional and governance quality of beneficiary countries that will adopt specific reform programs and in turn encourage private investment.

It is, however, not convincing to refute the fact that debt relief alter the debt dynamics and freeing domestic resources from debt servicing for development expenditures and also pave way for additional borrowing (financing) for investment. The possible reason for failure to realize significantly higher impact on public investment equation may emanate from the fact that the HIPC conditionalities emphasized the need for social expenditures particularly health and education which may be classified as recurrent expenditure by governments.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The overall aim of the study was to evaluate the impact of debt relief on investment under the HIPC Initiative in Sub-Saharan Africa (SSA). The clear distinction between the public and private investment have been done to test the impact of debt relief in the view of private sector and public sector. The results indicated that HIPC Initiative had significant impact on total investment in the region. This increase in total investment in SSA was mainly driven by private investment, which proved to have highly responded positively to debt relief owing to improved governance and macroeconomic stability brought by the implementation of the PRSP. However, there is little evidence to support the claim the HIPC Initiative has significant impact on public investment. In addition, there was significant difference in impact of debt relief on investment between the private and the public sector, for which the private sector was responsive, suggesting the improvements experienced in HIPC countries on the doing business index. These results also clearly support the debt overhang hypothesis and relatively suggest the fiscal space theory in SSA.

In conclusion, debt relief therefore affects investment in SSA by; 1) eliminating the debt overhang and encouraging investment and then growth, and 2) improving institutional and governance quality of beneficiary countries that will adopt specific reform programs and in turn encourage private investment.

5.2. Policy Recommendations

In view of the above results and conclusion, the positive impact of debt relief on investment should be embraced by the beneficiary countries and use it as a platform to continue implementing sound macroeconomic and governance issues in order to end poverty in SSA. Although the HIPC Initiative was developed to end poverty and attain the

Millennium Development Goals (MDGs), it is important that the positive outcome of debt relief on investment be encompassed during the setting up of Sustainable Development Goals (SDGs), in both the donor community and recipients countries to attain the following: 1) optimal conditionalities that stimulate incentive for action to both recipient and donor countries; 2) poverty reduction and inclusive growth in low income countries particularly SSA; and 3) a clear framework that focus on investment as a lasting solution to poverty reduction.

The findings of this paper suggest that HIPC has greater impacts on private investment than public investment in SSA, it is recommended that the HIPC countries place emphasis on improvement of institutional and governance and macroeconomic environment for the private sector activities, such as improvement of World Bank's Doing Business Indicators. In addition, considering less impact of HIPC on public investment, the debt relief package in future may also focus on directly promote public investment including setting clear quantitative and qualitative targets.

5.3. Areas for further research

The failure to prove that debt relief has impact on public investment in this paper maybe true but insufficient to conclude without a detailed look into the classification of public investment expenditures as well as the ability to trace how resources saved from debt relief are spend. As stated earlier, the HIPC Initiative's PRSP emphasized reduction of poverty through social expenditures on education and health. In this regard, these may have been recorded as recurrent expenditures, whereas expenditure on education is clearly human capital investment. Therefore, further research is recommended on the impact of debt relief on social service delivery in SSA or the fiscal response models before and after the HIPC Initiative.

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ANNEX 1: *List of Countries in Sub Saharan Africa – HIPCs and Non-HIPCs*	
HIPC	**Non-HIPC**
1. **Benin (2003)** 2. Burkina Faso (2000) 3. Burundi (2009) 4. Cameroon (2006) 5. Central African Republic (2009)* 6. Comoros (2012)** 7. Congo, Dem. Rep. (2010) 8. Congo (Brazzaville) (2010) 9. Cote d'Ivoire (2012)** 10. **Ethiopia (2004)** 11. Gambia, The MET (2007) 12. **Ghana (2004)** 13. Guinea MET (2010) 14. Guinea-Bissau (2010)* 15. Liberia (2008) 16. **Madagascar (2004)** 17. Malawi (2006) 18. **Mali (2003)** 19. Mauritania (2002) 20. Mozambique (2001) 21. **Niger (2004)** 22. **Rwanda (2005)** 23. Sao Tome and Principe (2007)* 24. *Senegal (2004)* 25. Sierra Leone (2006) 26. Tanzania (2001) 27. Togo (2010) 28. Uganda (2000) 29. Zambia (2005)*	1. **Angola** 2. **Botswana** 3. Cape Verde* 4. Djibouti* 5. Equatorial Guinea* 6. **Gabon** 7. Kenya* 8. **Lesotho** 9. **Mauritius** 10. Namibia* 11. Seychelles* 12. **South Africa** 13. **Swaziland** **Still to decide/ Complete, New Country, Exceptional Relief** 14. Chad (TBA) 15. Eritrea 16. Nigeria 17. Somalia 18. South Sudan 19. Sudan 20. Zimbabwe

Notes:
1. Numbers in parentheses ( ) indicated the time (year) in which the country attained the HIPC completion point.
2. Countries in *bold* are countries selected in the sample.
3. *Countries have limited data and have not been included in all samples.